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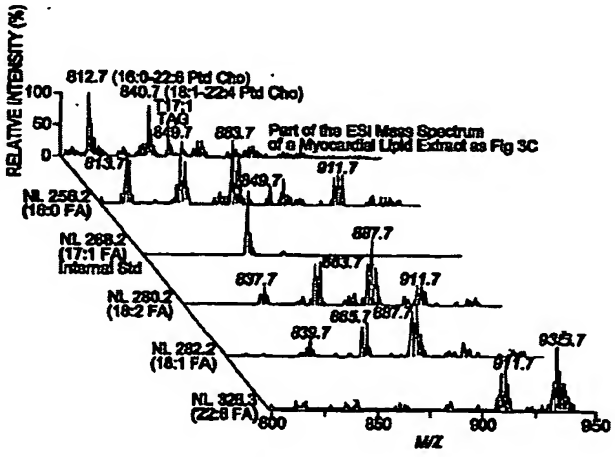
(54) Title: MULTIDIMENSIONAL MASS SPECTROMETRY OF SERUM AND CELLULAR LIPIDS DIRECTLY FROM BIOLOGIC EXTRACTS



(57) Abstract: A method for determination of at least one of the lipid species in a biological sample comprising subjecting the sample to lipid extraction to obtain a lipid extract and subjecting the resulting lipid extract to multidimensional electrospray ionization mass spectrometry using either precursor ion or neutral loss scanning (or both) of all naturally occurring aliphatic chains, lipid fragments and precursor ions leading to observed fragments to generate a multidimensional matrix whose contour densities provides structural and quantitative information directly without chromatography. A method for determination of lipid content and/or lipid molecular species composition and quantity directly from lipid extracts of a biological sample comprising subjecting said lipid extract to electrospray ionization multidimensional mass spectrometry by comparisons to standards and algorithms described herein.

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